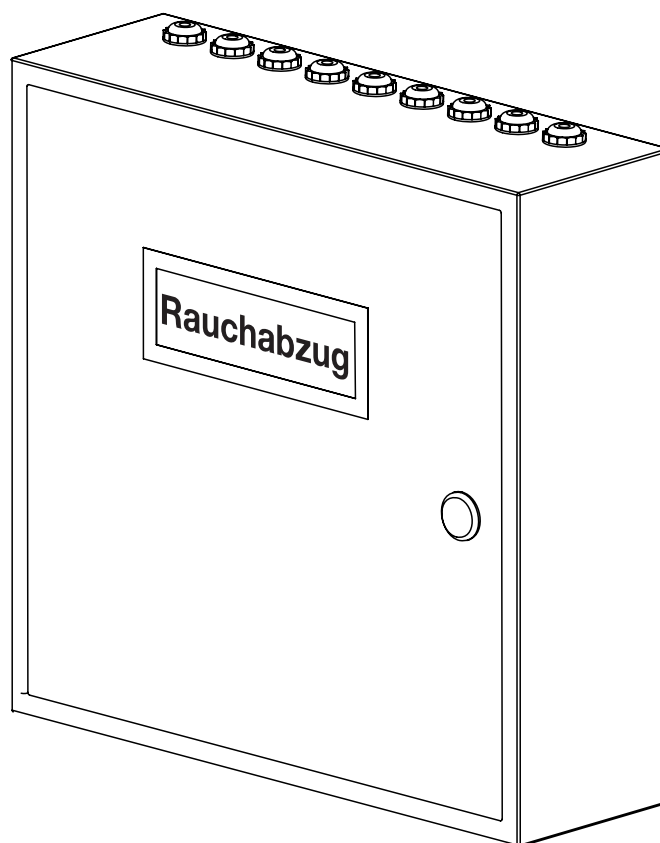


Installation and operating instructions

Central smoke exhaust unit RAZ 704/B



Member of the expert group for smoke and heat exhaust ventilation systems controlled by motor drives



Safety and installation information

Strictly adhere to all DIN, VDE, government safety organisation and state building regulations (for example VDE 0100, VDE 0833, VDE 0833, VDE 0800, BGV). All work on live mains components must be performed by trained technicians only. **When working on the central smoke exhaust unit, disconnect all poles of the mains supply by an isolating link. This link must be marked accordingly. The mains fuse must not exceed the rated current of 6A.**

Subtract the connector plugs of the emergency power battery packs. Prevent the central unit from being turned back on by accident. All wires except the feeder wire conduct 24 V DC and must not be laid together with electric power lines (follow VDE regulations). Never wire a star-wired network, but always proceed from fire pushbutton to fire pushbutton, from smoke and heat detector to smoke and heat detector, and from drive to drive. In any case, the wiring type must be coordinated with the responsible authority (fire department, T†V, fire protection authority, etc).

All wire lengths and cross sections must correspond with the technical specifications. The position of the central unit and the fire pushbuttons must also be coordinated with the responsible fire protection authority (observe state building regulations). Crush and shear points between window sashes and frames, light domes, and metal curb must be secured up to a height of 2.5 m by devices. These devices will stop the movement by the touch or interruption of a person (guideline issued by the government safety organisation for power-controlled windows, doors, and gates). Smoke and heat exhaust ventilation systems must be serviced once a year by the trained personnel of a company specialised in smoke and heat exhaust ventilation (we, therefore, recommend signing up for a maintenance agreement) and in accordance with all statutory regulations (building code and state building regulations). After the system has been installed successfully, all functions and the pivoting range of the drive must be checked.

CAUTION: IMPORTANT SAFETY INSTRUCTIONS
FOLLOW THESE INSTRUCTIONS TO ENSURE THE SAFETY OF ALL PERSONS. KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE.

Technical specifications

Mains connection	230 V AC / 50 Hz
Mains fuse	T 500 mA / 250 V
Output voltage	24 - 30 V DC
Output current	4 A
Power consumption	84 W
Protection class	IP 30 according to DIN 40 050
Work environment temperature	+10j to +36j C preferably +10j to + 30j C
Conformity (CE)	Error signalling EN 55011 B (7/92) Interference resistance EN 50082-1 (3/93)
2 battery packs	12 V maintenance-free
Emergency power supply	72 hrs.
Fire-ventilation group	1
Housing dimensions W/H/D	302 mm x 302 mm x 115 mm

The central smoke exhaust unit RAZ 704/B had been designed as a compact central control unit. The maximum output current of the power supply is indicated by the label RAZ 704/B.

The battery packs used have been matched to the maximum power output of the central unit. Sharing this power output with other fire and ventilation groups is not possible. The maximum output current of the central unit must not be exceeded!

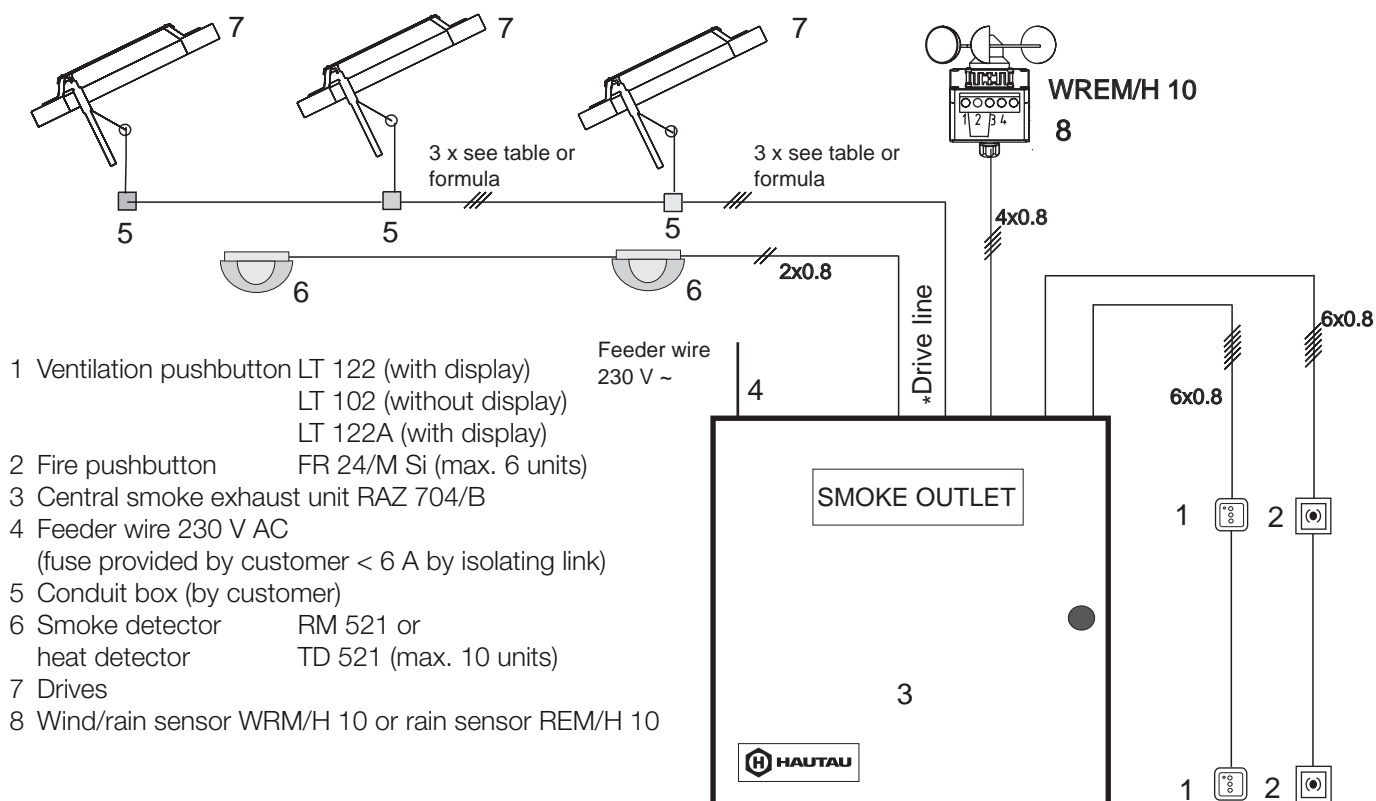
Installation instructions

Make sure your shipment is complete prior to commencing installation. Please notify your supplier immediately in case of any irregularities. When positioning the pushbuttons and the central unit, please follow all fire protection and state building regulations. Use suitable mounting material to install the pushbuttons and the central unit. When installing the drive for the window, please pay attention to the occurring forces. Connect all components only in accordance with the terminal connection diagrams included with the central unit and the drives. The wiring type must always be authorised by the responsible authority. All maximum wire lengths and minimum cross sections must correspond with the technical specifications provided in these instructions. All wires except the feeder wire conduct 24 V DC and must not be laid together with electric power lines. Make sure to observe the maximum possible connection options

Make sure to connect shunt and terminating resistors for central smoke and heat exhaust ventilation and alarm system loops. Two monitoring diodes (1N 4007) must be installed in the last conduit box in front of the drive and in accordance with the terminal connection diagram. Finish by checking all functions as well as function and operation displays on the central smoke exhaust unit and the pivoting range of the drives. Complete the assembler's certificate included in the control book and forward the request form and the corresponding envelope to the operator of the central smoke exhaust unit.

All drawings, installation and operating instructions and the control book must be kept with the central unit. Please store these documents in their entirety in the central smoke exhaust unit for future reference.

Wiring diagram



Wire lengths and cross sections

Calculation formula: $\frac{\text{Total current consumption} \times \text{max. wire lengths [m]}}{73}$
Cable cross section [mm²]

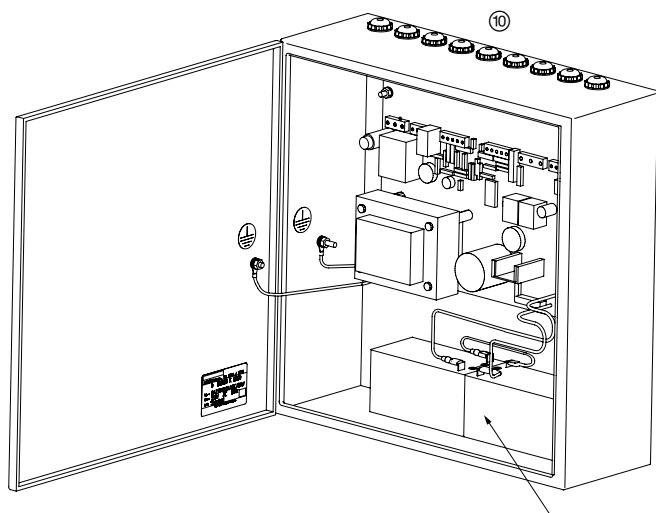
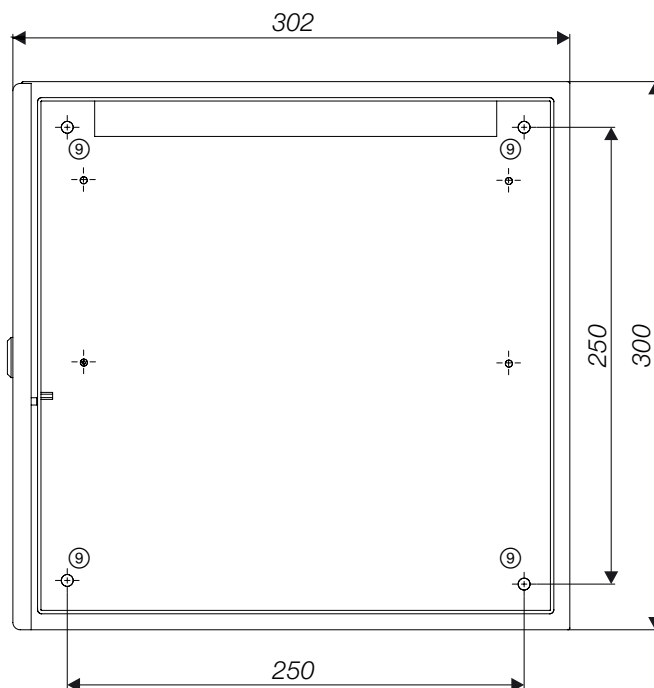
Wire cross section	Total number of drives per drive line							
Antriebe mit 0,5 A	1	2	3	4	5	6	7	8
3 x 1,5 mm²	219	109	73	54	42	36	31	27
3 x 2,5 mm²	365	182	121	91	72	60	52	45
3 x 6,0 mm²	872	438	192	219	208	145	125	109
Drives with 0,8 A	1	2	3	4	5	6	7	8
3 x 1,5 mm²	136	68	45	34	27	22	-	-
3 x 2,5 mm²	228	114	67	57	45	38	-	-
3 x 6,0 mm²	547	273	182	136	109	91	-	-
Drives with 1,0 A	1	2	3	4	5	6	7	8
3 x 1,5 mm²	109	54	36	27	-	-	-	-
3 x 2,5 mm²	182	91	60	45	-	-	-	-
3 x 6,0 mm²	438	219	145	108	-	-	-	-
Drives with 1,3 A	1	2	3	4	5	6	7	8
3 x 1,5 mm²	84	42	28	-	-	-	-	-
3 x 2,5 mm²	140	70	46	-	-	-	-	-
3 x 6,0 mm²	336	168	112	-	-	-	-	-
Drives with 1,6 A	1	2	3	4	5	6	7	8
3 x 1,5 mm²	68	34	-	-	-	-	-	-
3 x 2,5 mm²	114	57	-	-	-	-	-	-
3 x 6,0 mm²	273	136	-	-	-	-	-	-
Drives with 2 A	1	2	3	4	5	6	7	8
3 x 1,5 mm²	54	27						
3 x 2,5 mm²	91	45						
3 x 6,0 mm²	216	108						

Caution:

The clamping points in the control unit are designed for wire cross sections of up to 2.5 mm². For larger cross sections, reduce the cross section immediately in front of the control unit. **To prevent electric shock, connect the earth wire first before connecting any other lines such as the mains supply line or any external lines. Observe all applicable VDE regulations.**

Installing the central smoke exhaust unit

Use suitable mounting material to attach the central smoke exhaust unit at the designated borings (7).
When surface-mounted, the wires are guided through the designated cable bushings from the top.
When flush-mounted, the wires are routed through the designated hole in the rear wall of the housing.

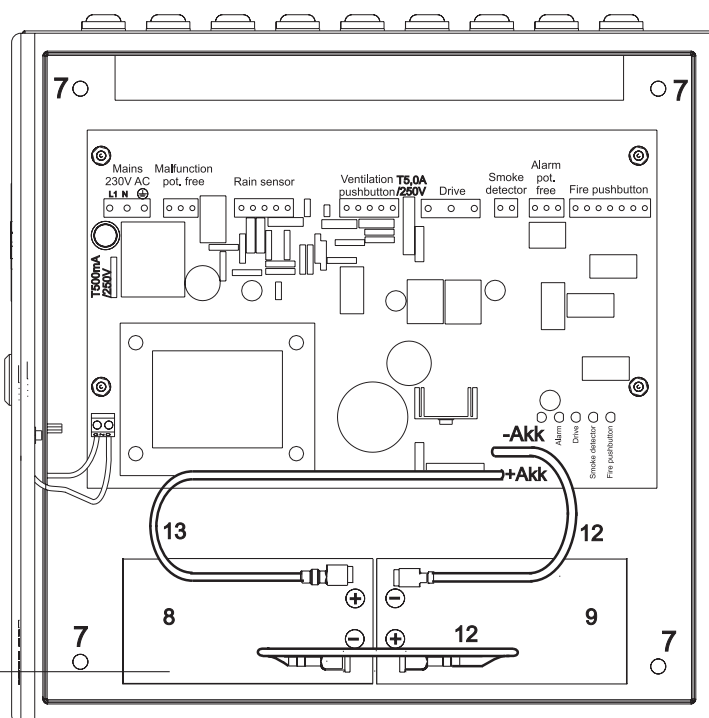


install battery-pack in up position

Installing the battery packs

Disconnect the central unit from the mains supply and open it.
Connect battery wire (12) with the negative pole (9) and battery wire (13) with the positive pole of the battery pack (8).
Use the battery pack bridge (12) to the negative pole (8) and the positive pole of the battery pack (9). Close the central unit and switch the mains on.

Recommended battery pack:
Hagen (drysafe, type: HDS 1212 12 V /1.2 Ah)
Panasonic (type: LC-R121R3PG 12 V/1.3 Ah)



Schematic diagram

Function test

Check the central unit functions properly after successfully installing all components (fire pushbuttons, smoke or heat detector, drives, ventilation pushbuttons, etc). Switch the 230 V AC power supply on and slip on the battery packs.

The line LED (green) on the circuit board and the operation LED (green) in the fire pushbutton (green) are lit.

To ensure the battery packs are sufficiently charged for testing, do not perform the function test until 2 hours after installation is complete. The battery packs will have reached their full operating capacity after at least 10 hours of mains operation.

Function test:

Push the alarm button (red) on the fire pushbuttons to turn the system on. The red LEDs in the fire pushbutton and on the circuit board are lit.

Check if all windows are opened all the way before closing the windows by pushing the Close button (black) in the fire pushbutton.

Actuate the smoke detector test control unit; the LED (red) on the detector is lit.

Reset the alarm by removing and cleaning the detector insert and resetting the fire pushbutton.

Check the ventilation pushbuttons by pressing the On, Stop, and Close buttons.

Switch off the 230 V AC mains supply; the mains LED on the circuit board (green) and the operation LED in the fire pushbutton (green) are turned off.

Push the alarm button (red) on the fire pushbuttons again to actuate the system. Check if all windows are opened all the way.

Afterwards, close the windows by pressing the Close button (black) in the fire pushbutton (no catch)

Actuate with smoke detector test control unit; LED (red) on the detector is lit.

Reset the alarm by removing and cleaning the detector insert and resetting the fire pushbutton

Maintenance and care

Maintenance:

Smoke and heat exhaust ventilation systems must be serviced at least once a year by a company specialised in smoke and heat exhaust ventilation and in accordance with all statutory regulations (building code and state building regulations).

The inspection plate on the central unit must be renewed, and a control book must be kept.

Displays in the terminal compartment of the central unit

Mains LED is not lit

Error source:

- 230 V AC mains supply is not connected
- Mains fuse switched off
- Battery pack not connected
- Battery pack wire break

Permanent signal - Error signal mains operation

Flashing signal - Error signal battery pack operation

LED Malfunction Detector is lit/flashing = Monitoring Detector

Error source:

- Detector not properly installed on mounting base
- 10k terminal resistor not connected in the mounting base of the last or only smoke detector
- Check connection to central smoke exhaust unit

LED Malfunction Fire Pushbutton is lit/flashing = Monitoring Fire Pushbutton

Error source:

- 47k terminal resistor not connected in the last or only fire pushbutton.
- Check connection to central smoke exhaust unit

Smoke detector(s) are not triggered

Error source:

- Connection to the wrong terminal
- Detector insert faulty

Ventilation pushbutton is not operational

Error source:

- Malfunction of a loop (detector, fire pushbutton or drive)
- Activation of smoke outlet
- Activation of superordinate function
- Mains failure

LED Malfunction in fire pushbutton is lit

Error source:

- Malfunction Fire pushbutton loop
- Malfunction Smoke detector loop
- Malfunction Drive loop
- Battery pack - failure

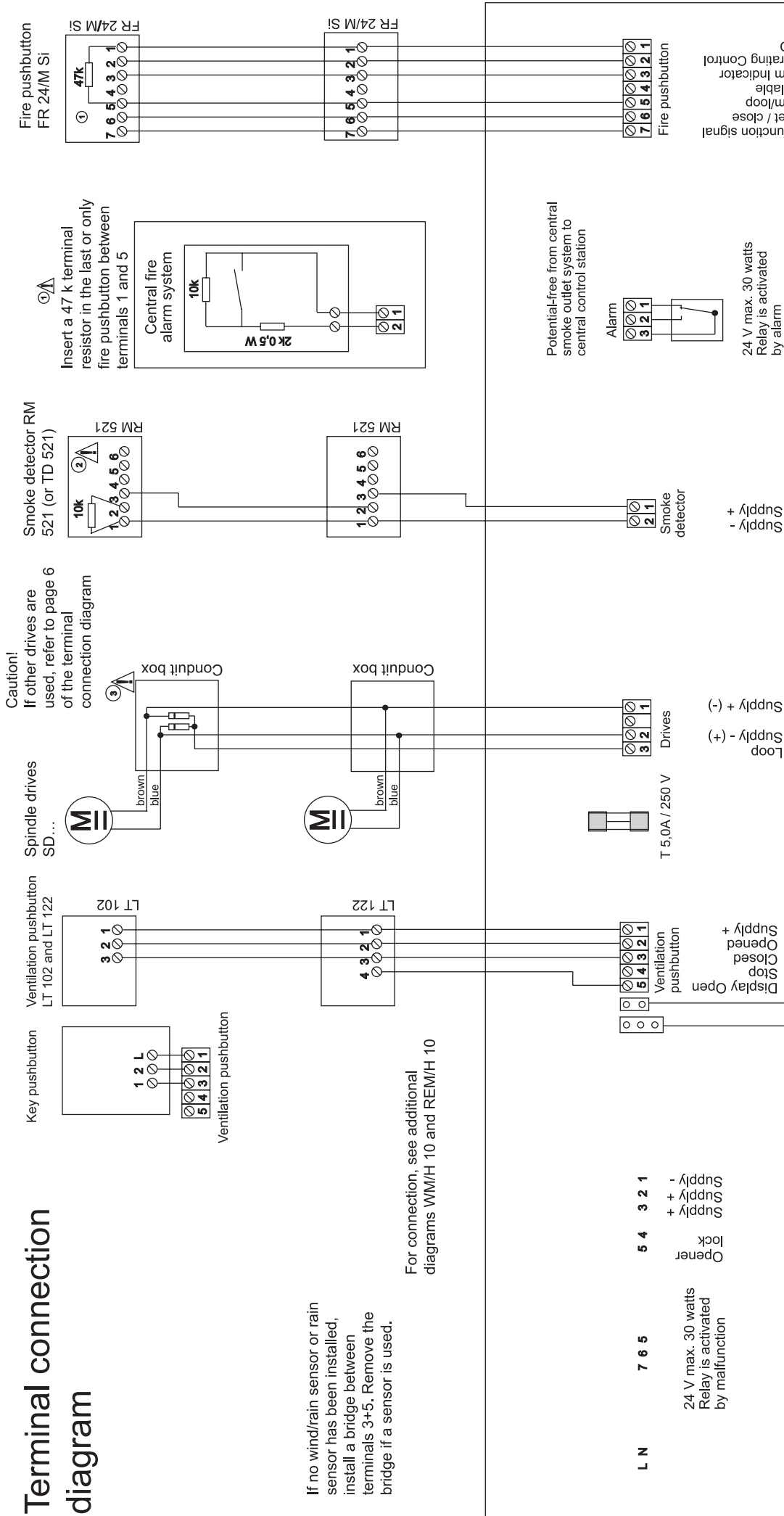
Care:

Check all devices and cable connections for external damage and dirt. The operability of smoke outlets, central units, fire pushbuttons, ventilation pushbuttons, etc. must not be affected by, for example, structural measures or stored goods.

Terminal connection diagram

If no wind/rain sensor or rain sensor has been installed, install a bridge between terminals 3+5. Remove the bridge if a sensor is used.

For connection, see additional diagrams WM/H 10 and REM/H 10



If no fire pushbutton FR24/M Si (FR 24/M) has been installed, install the terminal resistor in the central unit below terminals 1+ 5 (fire pushbutton)!

Install the 10k terminal resistor used for line monitoring in the only or last smoke detector RM 521 or (TD 521) according to the terminal connection diagram. If no smoke detector RM 521 has been installed, install the 10k terminal resistor in the central unit below terminals 1 + 2 (smoke detector)!

Install 2 1 N 4007 diodes used for line monitoring in the only or last electric drive according to the terminal connection diagram.

Ventilation not available due to a mains failure, alarm or any other malfunction

Ventilation not available due to a mains failure and alarm

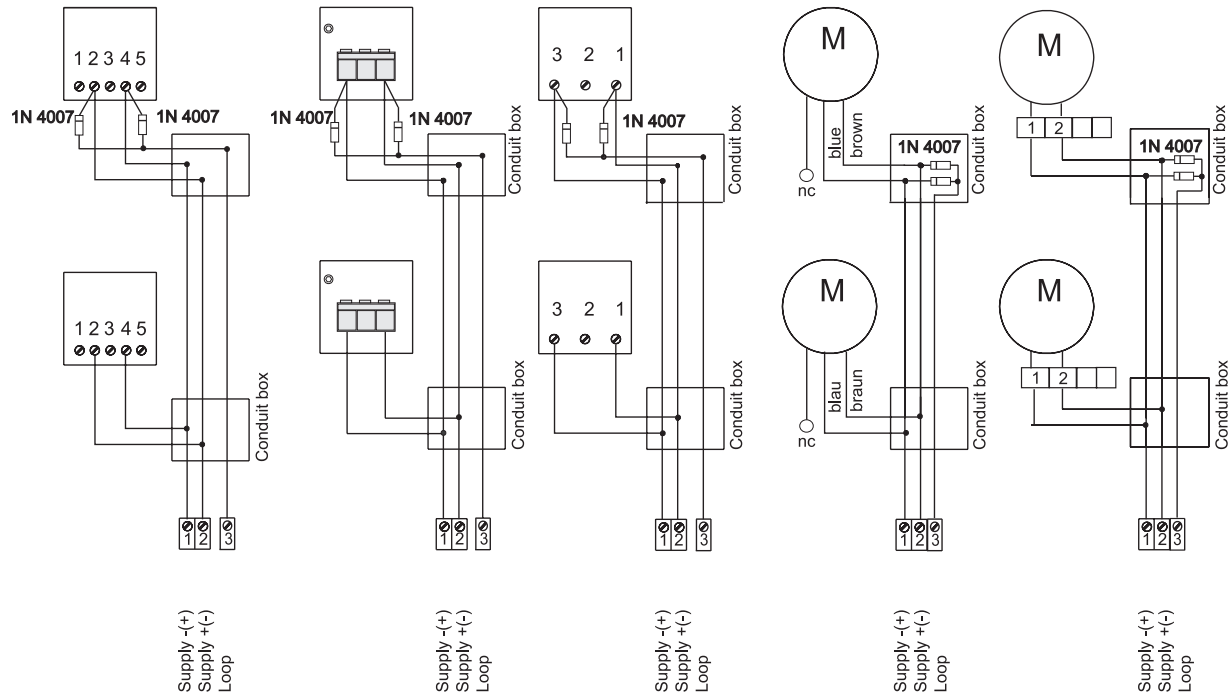
Ventilation pushbutton with stop button (lock) LT 102, LT 122

Ventilation pushbutton with stop button (opener)

- Mains and battery pack OK LED green
- Alarm triggered LED red
- Malsmoke Drives LED yellow
- Malsmoke Fire Pushbutton LED yellow
- Malsmoke Fire Pushbutton LED yellow

Date		Name	
draft		18.08.05	
appr.			
Terminal Connection Diagram Central smoke exhaust unit in compact design, type: RAZ 704/B			
Diagram No.			
RWA 3949			

Additional Diagram Drives

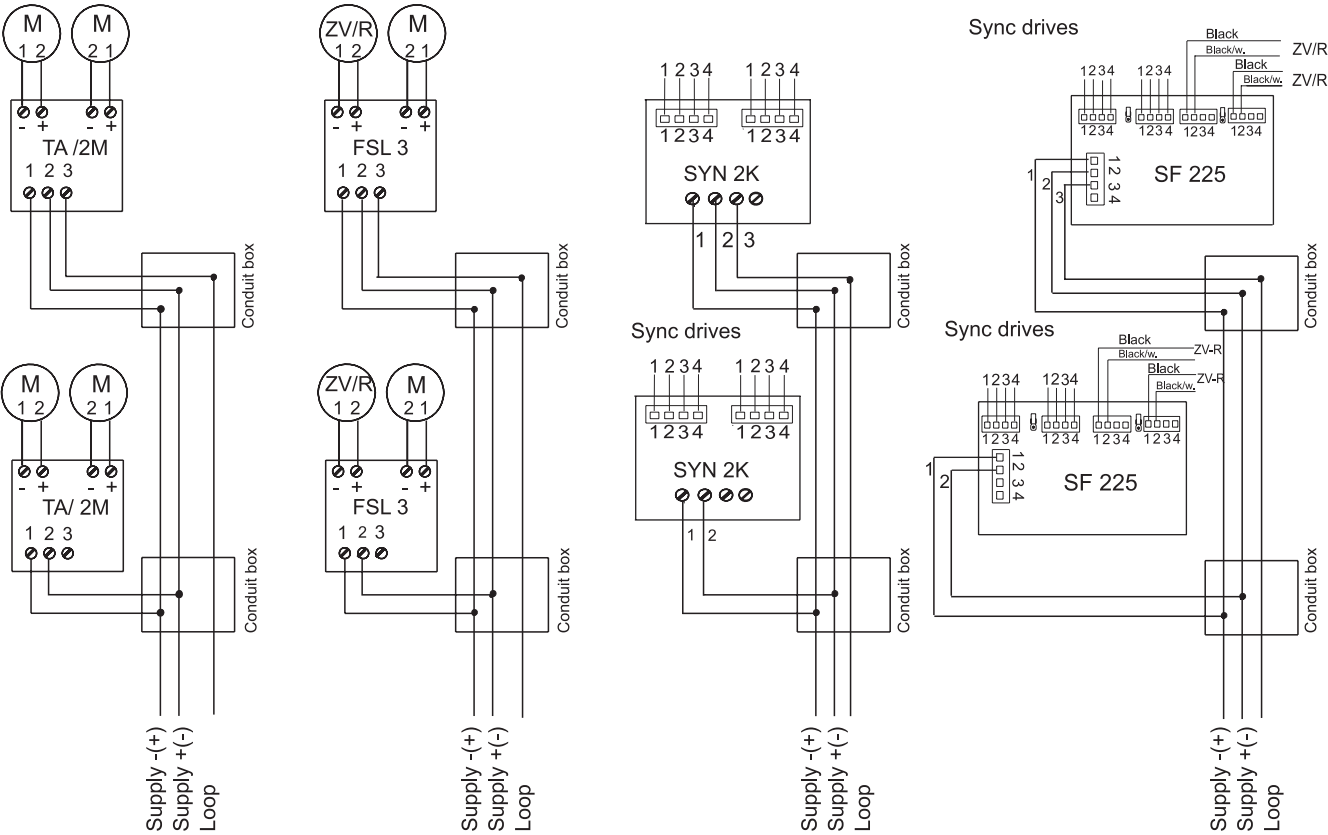


Drives with overload cutoff and external tandem cutoff TA/2M-24V DC

Drives with overload cutoff, additional locking and sequence control (FSL 3)

Sync drives with external sync control system

Sync drives with additional locking and external sync sequence control





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